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Semi-Arid Food Grain Research and Development  
Recherche et Développement des Cultures Vivrières dans les Zones Semi-Arides

**AFRO-ARAB COLLABORATIVE PROGRAMME ON RESEARCH  
AND TECHNOLOGY TRANSFER:  
FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT IN ARID  
AND SEMI-ARID ENVIRONMENT**

*A proposal submitted by the  
OAU/STRC-SAFGRAD*

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## **I. Introduction**

- 1.1 Environmental degradation is already posing limitations to food production in several African and Arab countries. Africa particularly faces serious food insecurity and poverty problems which are socially, environmentally and financially unsustainable.
- 1.2 The arid and semi-arid ecology sustain the livelihood of a considerable portion of the Afro-Arab population. Science and Technology advances in agriculture and the efficient management of natural resources are key to sustainable growth of agriculture without the degradation of arid and semi-arid agro-ecosystems.
- 1.3 During the past several decades, collaboration in agricultural research and natural resource management in arid and semi-arid agroecosystems was established among institutions of sub-Saharan African countries (SSA). Equally, several SSA institutions and their respective countries have established collaboration in science and technology with the North.
- 1.4 *The Afro-Arab Collaboration in Science and Technology is virtually lacking in various fields including agriculture and the management of*

*land water and energy resources in the arid and semi-arid ecologies. Over the past several decades, sub-Saharan Africa countries looked towards North-South collaboration for resolving various problems in agricultural development and environmental protection.*

- 1.5 South-South cooperation in Science and Technology particularly in the Afro-Arab region was limited, because the potential and natural collaboration of Afro-Arab regions in science and technology is yet to be fully explored.
- 1.6 Considering the similarities of agricultural development and environmental degradation problems of the Afro-Arab region, as well as the cultural socio-economic linkages and potentials of trade and economic cooperation, the purpose of this initiative is to strengthen Afro-Arab Cooperation in Science and Technology in general, and particularly in natural resources management to improve agricultural and livestock productivity, and to enhance human resource development in the sub-region.

## **II. Objectives**

- 2.1 The main objective of this initiative is to create the enabling environment for Afro-Arab cooperation in the application of Science and Technology and human resource development with particular emphasis on the management of natural resources of arid and semi-arid ecologies in order to attain food security and better the living conditions of millions of households in the two regions.

## 2.2 The specific objectives of the initiatives include:

- *To foster a dynamic cooperation in Science and Technology and human resources development among and between Afro-Arab research institutions and universities.*
- *To harness the synergies of Afro-Arab scientific capabilities for sustainable agricultural development and the management of the environment in the arid and semi-arid ecologies.*
- *To establish joint programmes between and among Afro-Arab research and development institutions in agriculture, applied ecology, soil-water management, irrigation systems, etc.*
- *To narrow knowledge gap in irrigation technology.*
- *To facilitate exchange of professional staff in research and teaching between Afro-Arab universities and research institutes.*
- *To facilitate the dissemination and exchange of applied technologies on environmental management and to meet the food, energy and shelter needs of rural and urban population in arid and semi-arid areas.*

## III. Programme Outline

- 3.1 The purpose of this initiative is to forge partnership among scientific and technical research institutions, as well as universities of the Afro-Arab region to jointly address problems of agricultural productivity and environmental degradation in the arid and semi-arid regions.

- 3.2 Besides population growth, some of the important factors that contribute to chronic food insecurity are decrease in arable quality land, fresh water, poor soil fertility, drought, etc. This initiative moves away from old practice of treating of agricultural and environmental issues separately. Part of the solution of food insecurity and the management of the fragile arid and semi-arid ecology is to build human resources technical and institutional capacity to solve these common problems. Some Afro-Arab countries are well positioned to provide the technical assistance.
- 3.3 Because of cultural linkages and sharing of similar environmental problems, the assumption of this initiative, is that technological advances made in the Afro-Arab region can benefit several countries in harnessing the semi-arid and arid resources to meet needs of food security, shelter, energy, etc. for millions of people in the sub-region.
- 3.4 The purpose of this programme is also to optimize the technological, human and natural resources capabilities that exist in the Afro-Arab region in solving problems of sustained agricultural productivity and improved management of the environment in the sub-region. The solidarity and partnership of the Afro-Arab research and development institutions will be strengthened in order to support and reinforce ongoing national, regional and international efforts.
- 3.5 The detailed components and activities of the proposed collaborative Afro-Arab programme will be elaborated by consultants, various partners from scientific, technical and research institutions and universities in the sub-region. The mechanisms for the identification

of agricultural, socio-economic, policy and environmental constraints of the semi-arid and arid ecology will be established.

### 3.6 The following nine programmes are indicative

#### 3.6.1 Semi-Arid and arid agriculture

The development and implementation of the following agricultural production modules and studies will be undertaken.

- ⇒Marginal lands management
- ⇒Integration crops and livestock production
- ⇒Soil conservation/Agroforestry
- ⇒Water resources and management
- ⇒Inventory of agricultural resources

#### 3.6.2 Integrated Natural Resource Management

#### 3.6.3 Human Resources Development

Needs for specialized training will be assessed. Certain universities and institutions of Afro-Arab countries can serve as focal institutions for implementing various training programme in areas of their comparative advantages.

### 3.6.4 Professional Staff Exchange Programme

To harness the synergies of scientific capabilities of the Afro-Arab countries, an exchange programme of researchers and professors between research and training institutions of Afro-Arab countries will be initiated. The programme may also include specialized high level training of manpower (M.Sc. and Ph.D.).

**3.6.5 Networking of Electronic Communications and Dissemination systems.** To facilitate exchange of information on the management of semi-arid and arid agriculture and environment will be established. This involves provision of equipment installation of the required hardware and soft-ware first in select focal sites and subsequently, progressively throughout the Afro-Arab region in the long-run.

### 3.6.6 Conferences, workshop and seminars

Special themes and issues pertaining to the management of sustainable agriculture and the environment at village level will be addressed.

### 3.6.7 Gender Focus Programmes

Women play crucial roles as food producers and guardians of household food and nutrition security. Furthermore, women have less access to land, money, education, technology, etc.

than men. Poverty reduction and prevention of environmental degradation requires full participation of women at research and development levels.

One of the imperative thrust of this programme is, therefore to:

- Improve training and leadership opportunities for women;
- Enhance professional growth and exchange of technical information among women professionals in the Afro-Arab region;

#### 3.6.8 Conferences, workshops and seminars

Themes and issues of common interest to the Afro-Arab region will be addressed during special seminars and regional conferences.

#### 3.6.9 Socio-Economic Studies

The Afro-Arab Science and Technology Cooperation should lead to improve joint economic ventures and growth. This calls for a number of policy reform studies, such as, commercialization and free exchange of goods and services, liberation of markets, incentive infrastructure, such as roads and communication systems, legal frameworks, financial institutions to access credits. Furthermore, social and economic impact assessments of the pilot projects and joint ventures introduced would be undertaken.



## IV. Strategy

Among the strategies that will be employed include:

- 4.1 To put in place mechanisms for Afro-Arab Collaboration in Science and Technology with particular emphasis on the development of sustainable productive agriculture without endangering the integrity of arid and semi-arid ecology.
- 4.2 To field consultants to initially identify the nature and type of programmes, to identify key issues of research, technology exchange needs, human resource development and to determine available technological options for resolving both agricultural and environmental problems.
- 4.3 Meeting of Scientific Working Groups will take place. The Working Group will be comprised of members from all Afro-Arab regions and its composition will be multi-disciplinary and gender bias. Three technical scientific sub-committees or "Working Groups" are visioned. These are:
  - Agriculture.
  - Environment/Natural resource management.
  - Social sector-human resource development.

## **V. Programme Development and Management**

### **5.1 Programmes will be developed as follows:**

#### **5.1.1 Consultants Study**

Arab and African highly experienced consultants will be fielded to undertake the feasibility study of the programme. The term of reference of the consultants will be approved by Afro-Arab Science and Technology Collaborative Programme Management Committee and donors; Technical and financial assistance will be solicited.

5.1.2 Technical workshops and scientific working groups will be organized to elaborate core programmes based on the findings of the consultants study and the experiences of committee members.

#### **5.1.3 Developing Proposals for Grants**

Identified Afro-Arab research technology development and transfer institutions and selected universities will be encouraged to submit proposals for competitive grants based on the guide lines provided.

5.1.4 Management committee meeting including representatives of OAU and Arab League will take place first to approve proposals and budgets; second, to agree on strategy for raising funds, and third, to approve programmes and management and programme implementing mechanisms. The Afro-Arab Collaborative Programme on Science and Technology will be implemented within the framework of the OAU and Arab-League joint Committee.

## 5.2 Coordination

OAU and the Arab League attaches great importance in strengthening South-South collaboration (particularly the Afro-Arab region) in the application of Science and Technology to spur economic growth in these regions.

A Programme Management Committee will be established. It will comprise of senior scientists, professors, policy makers from the Afro-Arab region. The Committee will be chaired alternatively by OAU and Arab League and will oversee the management of the programme. The function of the Scientific Programme Management Committee include:

5.2.1 Facilitate South-South (particularly Afro-Arab) collaboration in science, technology, transfer and development.

5.2.2 Provide policy guidance and directions of programme implementation.

5.2.3 Review and approve programme activities and budget allocations.

5.2.4 Mobilize funds for programme implementation.

5.2.5 *The Semi-Arid Food Grain Research and Development Agency (SAFGRAD) of the Organization of African Unity, Scientific and Technical Commission, headquartered in Ouagadougou, Burkina Faso, will serve as a regional coordinating and implementing Agency. A coordinator for this programme initiative will be identified and recruited in consultation with appropriate unit of Arab-League and with approval of the Joint Afro-Arab Technical Management Committee.*

## VI. EXPECTED OUTPUTS

Several outputs are expected from successful implementation of this collaborative programme:

6.1 Afro-Arab collaboration will be strengthened in the application of Science and Technology that could lead, first, to attain food security; second, joint economic ventures, in commerce and trade; and third, improve capacity for an efficient management of natural resources of the arid and semi-arid agro-ecologies.

- 6.2 The livelihood and income of millions of households in arid and semi-arid regions will be improved in the long-run.
- 6.3 Harness the technological capabilities and synergies of the Afro-Arab region for enhancing economic growth and cooperation in the sub-region.
- 6.4 Create the enabling policy environment for both scientific and economic cooperation, for example, joint venture in agricultural development, products transformation, processing, etc. into value added commodities.
- 6.5 South-South Collaboration, for example, among Afro-Arab countries will be strengthened for building research and development capabilities in the efficient utilization of natural resources of arid and semi-arid ecologies in the sub-region.
- 6.6 Networking for information exchange among the Afro-Arab researchers and technology development institutions, as well as universities will be realized. This include electronic communication and information dissemination systems.

## **VII. Programme Financial Requirements**

Annex 1. Shows the budget for the first phase (three years). This is an indicative budget. This budget can be further developed based on the results of study by consultants and of the technical committees' analysis. During the first year, the initial preparation of the

programme involving consultants, technical, scientific working groups and workshops constitute 68% of the budget. The second and third years, the budget for competitive grants and professional staff exchange amount to 45% and 50% respectively. The coordination and implementation of the programme constitutes about 25% of the budget during 2<sup>nd</sup> and 3<sup>rd</sup> year and 22 % of the budget for the first year.

## Annex I.

**BUDGET PROPOSAL FOR AFRO ARAB  
COLLABORATIVE PROGRAMME**  
(Thousands in US Dollars)

ACTIVITIES	YEAR			TOTAL
	I	II	III	
I. TECHNICAL PROGRAMME				
Consultants Study	60	30		90
Competitive Grant		125	125	250
Conferences/Workshops/Training	50	30	50	130
Scientific Working Group	30	25		55
Sub-total	<u>140</u>	<u>210</u>	<u>175</u>	<u>525</u>
II. PROF. STAFF EXCHANGE PROGRAMME		<u>60</u>	<u>60</u>	<u>120</u>
III. COORDINATION				
Coordinator		40	40	80
Programme Management				
Committee Meeting	35	30	30	95
Support Staff		15	15	30
Publication	10	15	15	40
Sub-total	<u>45</u>	<u>100</u>	<u>100</u>	<u>245</u>
IV. MANAGEMENT & ADMINISTRATION	<u>18.5</u>	<u>37</u>	<u>33.5</u>	<u>89</u>
GRAND TOTAL	<u>203.5</u>	<u>407</u>	<u>368.5</u>	<u>979</u>

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